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## **The Relationship Between Enlisted Deployment and Retention**

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**United States Army Research Institute  
for the Behavioral and Social Sciences**

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# THE RELATIONSHIP BETWEEN ENLISTED DEPLOYMENT AND RETENTION

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# The Relationship between Enlisted Deployment and Retention

## Introduction

In this Study Note, we report estimates of the relationship between deployment and Army enlisted retention for FY2003 through FY 2005. Our analysis concerns “voluntary” retention decisions at the expiration of the Soldier’s term of service or, if subject to stop-loss, at the completion of the stop-loss period. The decision of interest is the decision the Soldier makes to remain in the Army or to leave. The deployments in this period are primarily to Iraq or Afghanistan.

We measured deployment in several ways. First, we looked at measures of an individual’s recent deployment history. One issue with these measures is that following deployments Soldiers generally have a tour at home. It may be that those who are completing a home tour who believe that they are at greater risk than others of being deployed if they reenlist are those most likely to voluntarily separate at ETS. To address this, we create a measure of a Soldier’s expectations about deployment in their next term of service.

We measured recent deployment history by considering deployments in the 24 months prior to ETS. We created four measures of deployment: (1) a categorical indicator of any deployment in the past 24 months, (2) a continuous variable indicating the number of deployments in the past 24 months, (3) continuous variables indicating the number of months deployed during the past 24 months and its square, and (4) a continuous variable indicating the length of the longest deployment in the past 24 months. We measured expectations about the risk of deployment in the next term as the average share of Soldiers in their MOS deployed in current fiscal year and the previous fiscal year.

In the retention equations, we controlled for a variety of demographic and economic factors that have been found in the literature to affect voluntary retention behavior. We did this in order to isolate the effects of deployment measures and obtain unbiased estimates. We estimated voluntary retention equations for first term (Zone A, which extends from year of service 3 through year of service 6) and second term (Zone B, which extends from year of service 7 through year of service 9) Soldiers who were at an expiration of term of service in FY 2003, FY 2004 or FY 2005.<sup>1</sup> We estimated both aggregated first term and second term retention equations, and selected equations by military occupational specialty (MOS).

Below, we first discuss the nature of the data and present some descriptive statistics. Next, we present our estimation method and the results. Finally, we summarize our results.

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<sup>1</sup> We use first term and second term interchangeably with Zone A and Zone B. In practice, we consider Soldiers who are at an ETS in the Zone A range of years of service, which are typically first term decisions, and at the Zone B range of years of service, which are typically second term decisions. However, the decision may not necessarily be all first reenlistment decision in Zone A or all second reenlistment decision in Zone B.

## Data

SAG Corporation developed the base analysis file for this study. SAG obtained data from the Defense Manpower Data Center (DMDC). Two data extracts were obtained. First, SAG obtained a set of monthly extracts of the Army's Enlisted Master File. SAG selected a 5% random sample of Soldiers for each fiscal year in the analysis period. This file contained individual records for enlisted Soldiers including the following information:

- Unique identification number or special code (replacing SSN)
- ETS date
- Decision outcome (reenlistment, extension, separation)
- Years of service (YOS)
- Pay Grade
- Primary Military Occupational Specialty (MOS)
- Date of Birth
- Sex
- Race/Ethnic Group
- Marital Status
- Number of Dependents
- Years of Education Completed
- AFQT Percentile

If individuals were under stop-loss, their leave/stay decisions were recorded after the stop-loss expired, and the decision was attributed to the initial separation from service (or ETS) date.

A second extract was obtained from DMDC including deployment records. These records included the following information:

- Unique identifier or special code (replacing SSN)
- Deployed Country (destination)
- Date Deployed
- Date Returned
- Length of Deployment

The records for Soldiers at ETS were merged with the deployment records based on the encrypted SSNs.

To calculate the percentage of Soldiers in each MOS who were deployed in each fiscal year FY2002-FY 2005 the full Soldiers file (prior to obtaining the 5% sample) was merged with the deployment file to determine the number of Soldiers in each MOS who had been deployed at any time during the fiscal year. Then, the number who had been deployed during the fiscal year was divided by the total number of Soldiers in the MOS for the fiscal year.

The following summarizes some descriptive information from our analysis file. Overall, the file contains about 21,000 decisions. About 82 percent of these decisions are first term decisions. The descriptive statistics indicate reenlistment rates continuously declined between FY 2003 and



FY 2005. Between FY 2003 and FY 2004 the reenlistment rates declined 13% and between FY 2004 and FY 2005 reenlistment rates declined 21%. Declines were greater for first term Soldiers than for second term Soldiers.

Table 1: Number of and Percentage of Soldiers Reenlisting by Fiscal Year and Zone

	FY 2003			FY 2004	FY 2005	FY 2003- FY 2005
	Total	Before Invasion <sup>a</sup>	After Invasion <sup>b</sup>			Total
Number at ETS						
Total	6,568	2,120	4,448	7,134	7,502	21,204
Zone A (3-6 YOS)	5,154	1,577	3,577	5,757	6,411	17,322
Zone B (7-9 YOS)	1,414	543	871	1,377	1,091	3,882
Percent Reenlisting						
Total	54.2%	59.6%	51.6%	47.2%	37.5%	45.9%
Zone A (3-6 YOS)	49.6%	54.9%	47.2%	42.3%	33.6%	41.3%
Zone B (7-9 YOS)	71.0%	73.1%	69.7%	67.8%	60.2%	66.8%

<sup>a</sup>Before initiation of Operation Iraqi Freedom

<sup>b</sup>After initiation of Operation Iraqi Freedom

In the next section, we describe the methods we use to determine the extent to which these declines in reenlistment can be attributed to deployment.

## Methods

We used logistic regression to analyze the binomial reenlistment decision: 1 if stay, 0 if leave. If individuals extended or were under stop-loss, their decision dates were not changed; however, their decisions were recorded at the end of the extension or stop-loss period.

We estimated the regression with several subpopulations of Soldiers and overall. The subpopulations were Soldiers with: (1) 3-6 YOS (Zone A) and (2) 7-9 YOS (Zone B).

The major explanatory variables in the models include the following.

**Demographic variables.** Research suggests that ethnic minorities tend to reenlist at higher rates than others and women tend to reenlist at lower rates. We included dummy variables for both females and for non-whites. We also included a variable indicating Soldiers who graduated from high school and scored above the 50<sup>th</sup> percentile on the AFQT. Since Soldiers with families tend to reenlist at higher rates than do single members, we included a dummy indicating whether a member is married and a dummy indicating whether the member has children.

**Institutional and economic variables.** We included the member's pay grade and year of service. To control for occupational specialty, we included dummy variables for the 30 most common military occupational specialties. The specialties included as dummy variables are not exhaustive, but do account for over 70% of the Soldiers in the aggregate models.

**Deployment measures.** We created two sets of alternative measures of deployment, the first based on Soldiers' actual deployment experience and the second based on expectations of future deployments. These alternative measures were then analyzed separately in the retention equations. Measures reflecting Soldiers' actual deployment experience were based on their deployment history in the 24 months prior to ETS. Specifically, we created four measures of deployment experience: (1) any deployment in the past 24 months (coded 0 = No; 1 = Yes), (2) the number of deployments in the past 24 months, (3) the number of months deployed during the past 24 months, and (4) the longest deployment (in months) during the past 24 months.

One issue with these experience-based measures is that following deployments Soldiers generally have a tour at home. It may be that Soldiers having just completed a home tour and facing deployment within their reenlistment window are more likely to voluntarily separate at ETS than those considering reenlistment during or after deployment. As a result, actual deployment experience may bias the results toward a positive relationship between deployment and retention. Accordingly, we constructed a measure of an individual's expectations about deployment in his or her next term of service that is independent of the Soldier's actual deployment experience. We measured this expectation as the average share of Soldiers in their MOS deployed in the current fiscal year and the previous fiscal year.

The following tables present deployment statistics by Zone. The percentage of Soldiers who had been deployed in the last 24 months increased substantially following the invasion of Iraq, but declined in FY 2005. While the percentage of Soldiers deployed declined between FY 2004 and FY 2005, the average length of the longest deployment increased.

**Table 2: Aggregate Deployment and Reenlistment Rates by Fiscal Year and Zone (Averages over all Soldiers)**

	FY 2003		FY 2004	FY 2005
	Before Invasion <sup>a</sup>	After Invasion <sup>b</sup>		
<b>Zone A</b>				
% Reenlisted	54.9%	47.2%	42.3%	33.6%
% Deployed	8.9%	30.5%	51.6%	43.9%
Number of Times Deployed	0.09	0.34	0.60	0.51
Number of Months Deployed	0.54	2.06	4.28	4.19
Longest Deployment (Months)	0.53	1.95	4.16	5.07
Expected Deployment of MOS	11.6%	11.6%	16.0%	11.3%
<b>Zone B</b>				
% Reenlisted	73.1%	69.7%	67.8%	60.2%
% Deployed	9.9%	26.1%	43.2%	42.9%
Number of Times Deployed	0.10	0.29	0.50	0.49
Number of Months Deployed	0.63	1.83	3.50	4.11
Longest Deployment (Months)	0.60	1.76	3.42	5.00
Expected Deployment of MOS	11.3%	11.3%	15.5%	10.8%

<sup>a</sup>Before initiation of Operation Iraqi Freedom

<sup>b</sup>After initiation of Operation Iraqi Freedom

Appendix Tables A-1 to A-3 display similar statistics for the MOS that had more than 500 individuals in our analysis file.

Tables 3-A and 3-B display descriptive statistics for control variables for first and second term reenlistment decisions, respectively. Over this time period, the first term Soldiers were less likely to be married, black, and in grade E5 at ETS.

**Table 3-A: Means for Control Variables for Soldiers with 3-6 Years of Service by Fiscal Year**

<b>Variable</b>	<b>FY 2003</b>		<b>FY 2004</b>	<b>FY 2005</b>
	<b>Before Invasion<sup>a</sup></b>	<b>After Invasion<sup>b</sup></b>		
Male	83%	82%	82%	81%
Unknown Gender	0%	0%	0%	2%
Has Dependent Children	20%	15%	21%	24%
Unknown Dependent Children	0%	0%	0%	2%
Married	45%	37%	38%	33%
Divorced	3%	2%	2%	2%
Unknown Marital Status	0%	0%	0%	2%
Black	28%	26%	27%	20%
Asian	3%	3%	3%	3%
Hispanic	11%	12%	12%	11%
Unknown Race/Ethnic	0%	0%	0%	2%
Other Race/Ethnic	4%	3%	3%	3%
High Quality Recruit	55%	57%	56%	60%
Unknown Quality	2%	0%	1%	3%
Unknown Grade	0%	0%	0%	2%
Grade E02	2%	2%	2%	5%
Grade E03	4%	7%	6%	8%
Grade E04	54%	62%	64%	56%
Grade E05	34%	23%	23%	18%
Grade E06-E08	3%	2%	2%	2%
YOS at ETS	4.2	4.2	4.1	3.9

<sup>a</sup>Before initiation of Operation Iraqi Freedom

<sup>b</sup>After initiation of Operation Iraqi Freedom

Over this time period, second term Soldiers were more likely to have dependent children. Other variables were fairly constant over the period.

Table 3-B: Means for Control Variables for Soldiers with 7-9 Years of Service by Fiscal Year

Variable	FY 2003		FY 2004	FY 2005
	Before Invasion <sup>a</sup>	After Invasion <sup>b</sup>		
Male	82%	83%	84%	85%
Unknown Gender	0%	0%	0%	1%
Has Dependent Children	41%	42%	50%	60%
Unknown Dependent Children	0%	0%	0%	1%
Married	70%	70%	69%	69%
Divorced	6%	5%	6%	5%
Unknown Marital Status	0%	0%	0%	1%
Black	30%	32%	32%	26%
Asian	1%	3%	2%	2%
Hispanic	8%	8%	10%	10%
Unknown Race/Ethnic	0%	0%	0%	1%
Other Race/Ethnic	5%	5%	4%	5%
High Quality Recruit	62%	63%	61%	66%
Unknown Quality	2%	2%	1%	2%
Unknown Grade	0%	0%	0%	1%
Grade E01-E04	18%	21%	19%	22%
Grade E06-E08	30%	28%	31%	33%
YOS at ETS	7.9	7.9	7.9	7.9

<sup>a</sup>Before initiation of Operation Iraqi Freedom

<sup>b</sup>After initiation of Operation Iraqi Freedom

Tables 4-A and 4-B display the share of Soldiers at ETS who were in the top ten MOS groups for first and second term decisions, respectively. For first term decisions, the share of Soldiers in the infantry group increased while that in human resource specialist group declined.

Table 4-A: Representation of Soldiers with 3-6 Years of Service in the Top Ten MOS by Fiscal Year

MOS	MOS Name	FY 2003		FY 2004	FY 2005
		Before Invasion <sup>a</sup>	After Invasion <sup>b</sup>		
11B	Infantryman	12.7%	11.2%	14.8%	16.0%
92Y	Unit Supply Specialist	4.0%	4.7%	4.2%	3.1%
88M	Combat Engineer	4.0%	3.3%	2.6%	2.9%
21B	Motor Transport Operator	3.8%	3.8%	2.3%	2.3%
63X	Vehicle Maintenance Supervisor	3.7%	4.4%	3.7%	5.0%
92F	Petroleum Supply Specialist	3.6%	2.2%	2.6%	3.2%
42A	Human Resource Specialist	3.6%	3.2%	2.9%	1.4%
68W	Health Care Supply Specialist	3.1%	3.5%	3.6%	4.1%
13B	Cannon Crew Member	3.1%	2.7%	2.3%	2.8%
31B	Military Police	2.9%	2.2%	1.9%	2.7%

<sup>a</sup>Before initiation of Operation Iraqi Freedom

<sup>b</sup>After initiation of Operation Iraqi Freedom

Among second term Soldiers there was an increase in infantrymen and vehicle maintenance supervisors and a decline in military police.

Table 4-B: Representation of Soldiers with 7-9 Years of Service in the Top Ten MOS by Fiscal Year

MOS	MOS Name	FY 2003		FY 2004	FY 2005
		Before Invasion <sup>a</sup>	After Invasion <sup>b</sup>		
11B	Infantryman	9%	8%	9%	11%
31B	Military Police	6%	3%	3%	3%
68W	Health Care Supply Specialist	6%	6%	6%	5%
88M	Combat Engineer	5%	3%	3%	4%
42A	Human Resource Specialist	4%	3%	4%	3%
63X	Vehicle Maintenance Supervisor	4%	3%	4%	6%
92A	Quartermaster's Office	4%	5%	5%	3%
42L	Administrative Specialist	3%	3%	3%	2%
19K	Food Service Operations	3%	4%	2%	2%
13B	Cannon Crew Member	3%	2%	2%	2%

<sup>a</sup>Before initiation of Operation Iraqi Freedom

<sup>b</sup>After initiation of Operation Iraqi Freedom

## Results

In this section, we present and discuss the results for the logistic regression models. We consider, separately, models that are based on an individual's recent deployment history and those that analyze the influence of expected deployment.

## Individual Deployment History Models

Here, we display results for the four models that are based on individuals' recent deployment history. Appendix Tables A-5 and A-6 display the coefficients for the full set of control variables included in these models.

**Table 5: Logistic Regression Results Influence of Soldier's Recent Deployment History on Retention by Years of Service**

<b>Deployment Measure</b>	<b>3-6 YOS</b>	<b>7-9 YOS</b>
1) Recently Deployed	0.233 **	0.440 **
2) Number of Months Deployed	0.002	0.070
Number of Months Deployed Squared	0.002 **	-0.001 **
3) Number of Times Deployed	0.180 **	0.387 **
4) Longest Number of Months Deployed	0.031 **	0.057 **

*Note.* Parameter estimates reported are unstandardized logistic regression coefficients.

\*\* Significantly different from zero at the 99% confidence level.

All of these models indicate that deployment had a positive association with retention rates. Although the sign of the coefficient for the squared term for number of months deployed was not the same for the two sets of Soldiers, the overall model with length of deployment as a component indicated a positive impact of deployment on reenlistment.

With the exception of the linear effect of number of months deployed in the presence of its squared effect, the results were significantly different from zero at the 99% confidence level. The sizes of the impacts, however, were small.

Table 6 reports the elasticity of reenlistment with respect to each of the deployment measures. These elasticities indicate that very dramatic changes in deployment are required for deployment to result in a visible impact on reenlistment. For example, prior to the invasion of Iraq, about 10% of first term Soldiers had been deployed in the 24 months prior to ETS. By FY 2004 there was a 500% increase with about 50% having been deployed. The elasticity for recent deployment in Table 6 implies that this 500% increase in deployment would result in only about a 5% increase in the reenlistment rate.

**Table 6: Elasticity of Reenlistment by Deployment Measure and Years of Service**

<b>Deployment Measure</b>	<b>Elasticity</b>	
	<b>3-6 YOS</b>	<b>7-9 YOS</b>
Recently Deployed	0.010	0.012
Number of Months Deployed	0.011	0.008
Number of Times Deployed	0.008	0.011
Longest Number of Months Deployed	0.008	0.009

These results are similar to those in previous studies which have found that deployment is positively related to retention, but that these effects are modest.<sup>2,3,4</sup>

## MOS-Based Expected Deployment Rate Model

In the previous section, we found that Soldiers who had recently returned from a deployment were more likely to reenlist than those who had not been deployed. In this section, we consider how expectations for deployment in the next term of service impact deployment. Alternatively, expectations for deployment could be measured more directly through survey data which would ask whether they believe they will be deployed. Since we do not have this type of direct measure of deployment expectations, we model expected deployment based on the average rate of deployment for each individual's MOS during the current fiscal year and most recent previous fiscal year. The measure has the advantage that it is independent of the individual Soldier's deployment experience.

Logistic regression results are presented in Table 7. We estimated several specifications. Because our indicator of expected deployment was developed by MOS and year, the model may not estimate the impact of expected deployment independently from MOS and time period. Therefore, we estimated the model with and without time and MOS indicators.

**Table 7: Logistic Regression Results Influence of Soldier's Expected Deployment on Retention by Years of Service with and without Factoring in Time Period and MOS**

	Coefficient on Expected Deployment		
	3-6 YOS	7-9 YOS	3-9 YOS
No Time/MOS	-2.411 **	-0.026	-1.861 **
With Time Dummies	-2.925 **	-0.675	-2.306 **
With MOS and Time Dummies	-1.619 *	-0.984	-1.362 *

*Note.* Parameter estimates reported are unstandardized logistic regression coefficients.

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

These estimates indicate that the expectation of deployment had a negative impact on voluntary retention. These results are significantly different from zero in the first term equations and the combined first and second term equations even when MOS indicators are included in the model.

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<sup>2</sup> Hogan, Paul and Jared Hughes. (2000) "Voluntary Enlisted Retention and PERSTEMPO: An Empirical Analysis of Army Administrative Data." The Lewin Group.

<sup>3</sup> Hosek, James and Totten, Mark. (1998) "Does Perstempo Hurt Reenlistment? The Effect of Long or Hostile Perstempo on Reenlistment," RAND Corporation.

<sup>4</sup> Sticha, P.J., Sadacca, R., DiFazio, A.S., Knerr, C.M., Hogan, P.F., & Diana, M. (1999). Personnel TEMPO: Definition, measurement, and effects on retention, readiness, and quality of life (ARI Report No. 99-04). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

The qualitative implications are robust with regard to specification. The coefficient of expected deployment was statistically significant and negative in the first specification. However, this specification did not control for either MOS or time period, and one might expect that “expected deployment” would be correlated with each of these. However, when variables for MOS and time period were entered into the retention equation, the effect on “expected deployment” remained negative and statistically significant.

The impact of expected deployment on retention, though statistically significant, was relatively small. Table 8 displays the elasticities associated with the coefficients in Table 7. These elasticities indicate that the increase in expected deployment that occurred between FY 2003 and FY 2004 would have resulted in only small decreases in retention of a few percentage points. In contrast, dramatic reductions in retention were observed.

**Table 8: Elasticity of Reenlistment with Soldier’s Expected Deployment by Years of Service with and without Factoring in Time Period and MOS**

	<b>3-6 YOS</b>	<b>7-9 YOS</b>	<b>3-9 YOS</b>
No Time/MOS	-0.150	-0.001	-0.103
With Time Dummies	-0.163	-0.020	-0.113
With MOS and Time Dummies	-0.090	-0.029	-0.067

Appendix Tables A-6 to A-8 display the estimated coefficients for all the variables included in these models. We assessed whether demographic changes or changes in institutional variables such as grade and MOS could have had a substantial impact on the declines in reenlistment observed between FY 2003 and FY 2005. The changes in these variables during this period are displayed in Tables 3 and 4 above. Over this time period, first term Soldiers became less likely to be married, black, and in grade E5 at ETS. Based on the coefficient estimates, these shifts would have had a small negative influence on reenlistment. Second term Soldiers were more likely to have dependent children. This would have resulted in a small positive shift in reenlistment. Both first and second term Soldiers were more likely to be in the infantry MOS. This would have resulted in a small negative shift in reenlistment. Other variables were fairly constant over the period. Thus, overall, the estimated shifts in deployment and the observed demographic and institutional changes in this period explain only a small portion of the change in reenlistment observed.



When indicator variables for FY 2004 and FY 2005 were included in the expected deployment model the coefficients for these variables were negative and substantial as displayed in Table 9.

**Table 9: Logistic Regression Results: Influence of Time Period on Retention by Years of Service Controlling and Not Controlling for MOS**

Variable	Coefficient on Time Period		
	3-6 YOS	7-9 YOS	3-9 YOS
FY 2004			
No MOS	-0.207 **	-0.200 *	-0.210 **
With MOS	-0.258 **	-0.195 #	-0.249 **
FY 2005			
No MOS	-0.471 **	-0.546 **	-0.471 **
With MOS	-0.465 **	-0.563 **	-0.469 **

*Note.* Parameter estimates reported are unstandardized logistic regression coefficients.

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

The estimates for these time period variables indicate that there were other factors within these periods that were not captured in our retention measures that had a substantial influence on the decline in retention. For example, as a result of deployments, workloads may have increased for Soldiers who were not deployed causing these individuals to opt not to reenlist.

Our measure of deployment expectations was based on actual deployments observed. This measure is unlikely to capture shifts in deployment expectations over these periods that did not coincide with actual observed deployment. For example, in FY 2003 Soldiers may have believed that deployments to Iraq would decline substantially in FY 2004 and FY 2005. In contrast, in FY 2005 Soldiers may have believed their likelihood of deployment was substantially greater than the rates observed. Other measures of deployment expectations, including survey data, could provide more insight into these perceptions.

Another explanation for the shift in reenlistment is that the hazard associated with war time deployment changed during this time period. To assess this change, we estimated the expected deployment model with the time period and MOS indicators with a variable indicating the fatality rate among deployed army Soldiers for each fiscal year.<sup>5</sup> Table 10 displays the fatality rate for each fiscal year.

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<sup>5</sup> Because the fatality indicator is measured by fiscal year, we controlled for differences across the fiscal years by allowing different intercept terms for each fiscal year.

Table 10: Fatality Rates for Deployed Army Soldiers  
FY 2003-FY 2005<sup>6</sup>

Year	Number Deployed	Fatalities	Fatalities per 100
FY2003	113,166	180	0.16
FY2004	75,925	412	0.54
FY2005	54,448	349	0.64

The coefficient estimates for expected deployment rates, the fatality rate, and the time period indicators for FY 2004 and FY 2005 are displayed in Table 11. Complete results for these regressions are displayed in Appendix Table A-9.

Table 11: Logistic Regression Results Influence of Soldier's Expected Deployment and the Fatality Rate on Reenlistment by Years of Service

	3-6 YOS	7-9 YOS	3-9 YOS
Expected Deployment	-1.62 *	-0.98	-1.36 *
Fatality Rate	-25.13 **	1.44	-26.97 **
FY 2004	9.29 **	-0.74	10.00 **
FY 2005	11.60 **	-1.25	12.48 **

Note. Parameter estimates reported are unstandardized logistic regression coefficients.

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

The coefficients on expected deployment are very similar to those in Table 7 for the model with time and MOS indicators. Thus, the fatality rates are not strongly related to expected deployment.

The fatality rate indicator is large and significant in the first term and combined first and second term models, but small and insignificant in the second term model. Thus, fatality rates among army Soldiers in Iraq are highly negatively related to reenlistment for first term Soldiers even when controlling for other factors such as deployment expectations, demographics, and institutional variables. However, we do note that there are only three time period observations on this measure. It is correlated with the reenlistment rates, but this correlation may be spurious, despite the statistical significance.

In Table 11 the indicators for FY 2004 and FY 2005 are large, positive, and highly significant. This suggests that there are remaining factors that have a substantial effect on reenlistment across this time period which are not identified in the model.

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<sup>6</sup> Number of deployed officers is based on analysis of deployment data obtained from DMDC. Fatality rates for Army Soldiers were obtained from <http://icasualties.org/oif/Service.aspx> accessed 12/10/07.

## Discussion

Using administrative data on actual retention decisions and deployments, we found that measures related to recent deployment were positively associated with the probability of retention at ETS for both first and second term Soldiers. Although the estimated effects were positive and statistically significant, as a practical matter, the implied impact of even the substantial increases in deployment that occurred over the period would be only a modest increase in retention. These results are generally consistent with previous studies by Hogan and Hughes (2000), Hosek and Totten (1998), and Sticha et al. (1999) who considered the effect of deployment on retention in peacetime.

In contrast, when the expectation of deployment in the next term was considered instead of historical deployment, we found that deployment had a negative impact on retention. Again, however, even the dramatic increases in deployment associated with Iraq and Afghanistan would be expected to result in only a few percentage points decline in retention. When a measure of the hazard of deployment, fatality rates among Army Soldiers, was added to the model, this measure was estimated to have a large negative impact on reenlistment; however, the time period indicators still remained large and significant suggesting other unidentified factors impact reenlistment.

Thus, the measures of deployment used in this study did not fully explain the substantial declines in retention observed between FY 2003 and FY 2005. In particular, the measures of expectations of the likelihood of deployment were lower in FY 2005 than in FY 2004, but retention continued to decline between FY 2004 and FY 2005. Our measure of deployment expectations assumed that the observed deployment rates over the period for an enlisted person's MOS was a good proxy for perceptions about deployment. If enlisted Soldiers reaching ETS in FY 2003 and FY 2004 believed deployments to Iraq would have declined more rapidly than was actually observed, our measures of expected deployment would have understated the true relationship between deployment expectations and retention. Other measures of deployment expectations of Soldiers at ETS, perhaps including survey measures, would enhance the estimates provided here and provide greater insight into the reenlistment rate declines observed.



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## **Appendix: Complete Regression Results**

Table A-1: Deployment and Reenlistment Rates by MOS

	FY 2003		FY 2004	FY 2005
	Before Invasion	After Invasion		
Infantry - 11B				
Reenlistment Rate	54.1%	44.9%	37.9%	33.1%
Deployment Rate	12.9%	34.3%	58.7%	52.2%
Number of Deployed Months	0.14	0.43	0.74	0.62
Number of Deployments	0.64	2.48	5.17	4.90
Longest Deployment	0.59	2.22	4.86	5.90
Expected Deployment Rate	13.5%	13.5%	18.8%	14.0%
Cannon Crewmember - 13B				
Reenlistment Rate	57.6%	58.5%	44.2%	38.0%
Deployment Rate	6.1%	29.3%	56.4%	49.0%
Number of Deployed Months	0.06	0.31	0.60	0.56
Number of Deployments	0.32	2.35	4.99	5.09
Longest Deployment	0.32	2.29	4.87	6.00
Expected Deployment Rate	10.9%	10.9%	16.2%	9.9%
Cavalry Scout - 19D				
Reenlistment Rate	49.1%	45.6%	42.6%	40.3%
Deployment Rate	13.2%	36.0%	51.9%	54.8%
Number of Deployed Months	0.13	0.37	0.56	0.66
Number of Deployments	0.89	2.77	4.43	5.78
Longest Deployment	0.89	2.73	4.30	6.66
Expected Deployment Rate	13.4%	13.4%	20.8%	14.0%
M1 Armor Crewman - 19K				
Reenlistment Rate	56.7%	57.9%	49.5%	35.8%
Deployment Rate	10.0%	28.1%	53.7%	50.0%
Number of Deployed Months	0.10	0.30	0.57	0.56
Number of Deployments	0.48	2.15	4.99	5.34
Longest Deployment	0.48	2.08	4.98	6.65
Expected Deployment Rate	12.1%	12.1%	18.3%	13.5%
Combat Engineer - 21B				
Reenlistment Rate	47.3%	47.1%	44.3%	39.5%
Deployment Rate	6.8%	35.1%	65.9%	54.5%
Number of Deployed Months	0.08	0.38	0.71	0.65
Number of Deployments	0.62	2.51	5.95	5.42
Longest Deployment	0.55	2.48	5.78	6.69
Expected Deployment Rate	12.4%	12.4%	17.3%	10.1%



Table A-2: Deployment and Reenlistment Rates by MOS

	FY 2003		FY 2004	FY 2005
	Before Invasion	After Invasion		
Military Police - 31B				
Reenlistment Rate	58.3%	60.4%	48.5%	44.0%
Deployment Rate	13.1%	22.5%	33.1%	34.9%
Number of Deployed Months	0.14	0.26	0.40	0.39
Number of Deployments	1.38	1.66	3.10	3.30
Longest Deployment	1.36	1.50	3.16	4.43
Expected Deployment Rate	8.6%	8.6%	11.6%	9.5%
Human Resources Specialist - 42A				
Reenlistment Rate	63.8%	61.3%	61.2%	47.7%
Deployment Rate	2.5%	15.5%	25.6%	29.7%
Number of Deployed Months	0.03	0.16	0.28	0.33
Number of Deployments	0.35	1.10	2.02	2.72
Longest Deployment	0.35	1.10	2.10	3.70
Expected Deployment Rate	7.2%	7.2%	9.7%	6.8%
Administrative Specialist - 42L				
Reenlistment Rate	71.4%	66.4%	51.9%	34.5%
Deployment Rate	2.4%	19.5%	26.8%	27.4%
Number of Deployed Months	0.02	0.20	0.31	0.28
Number of Deployments	0.14	1.17	2.14	2.65
Longest Deployment	0.14	1.16	2.48	3.35
Expected Deployment Rate	5.5%	5.5%	6.8%	5.5%
Vehicle Maintenance Supervisor - 63X				
Reenlistment Rate	51.2%	54.0%	50.4%	46.7%
Deployment Rate	10.7%	29.6%	54.4%	51.0%
Number of Deployed Months	0.12	0.30	0.62	0.61
Number of Deployments	0.86	1.92	4.19	5.16
Longest Deployment	0.81	1.94	4.00	6.26
Expected Deployment Rate	12.3%	12.3%	17.2%	11.3%
Health Care Specialist - 68W				
Reenlistment Rate	73.4%	57.5%	51.7%	46.1%
Deployment Rate	3.8%	26.3%	47.7%	44.0%
Number of Deployed Months	0.04	0.32	0.57	0.48
Number of Deployments	0.18	1.55	3.78	4.09
Longest Deployment	0.18	1.34	3.53	4.79
Expected Deployment Rate	11.7%	11.7%	16.1%	10.7%

Table A-3: Deployment and Reenlistment Rates by MOS

	FY 2003		FY 2004	FY 2005
	Before Invasion	After Invasion		
Motor Transport Operator - 88M				
Reenlistment Rate	60.7%	51.7%	53.0%	38.8%
Deployment Rate	7.9%	36.6%	56.6%	49.6%
Number of Deployed Months	0.08	0.37	0.66	0.60
Number of Deployments	0.45	2.32	4.80	4.84
Longest Deployment	0.45	2.31	4.47	5.27
Expected Deployment Rate	10.8%	10.8%	14.3%	9.3%
Quartermaster Officer - 92A				
Reenlistment Rate	57.6%	51.7%	47.6%	34.7%
Deployment Rate	7.6%	25.3%	47.3%	38.0%
Number of Deployed Months	0.08	0.27	0.51	0.42
Number of Deployments	0.83	1.52	3.57	3.84
Longest Deployment	0.92	1.44	3.51	5.06
Expected Deployment Rate	11.5%	11.5%	14.7%	9.0%
Petroleum Supply Specialist - 92F				
Reenlistment Rate	55.7%	61.1%	49.1%	42.3%
Deployment Rate	8.6%	21.2%	56.1%	52.7%
Number of Deployed Months	0.09	0.24	0.65	0.59
Number of Deployments	0.36	1.34	4.34	5.08
Longest Deployment	0.36	1.23	4.38	6.30
Expected Deployment Rate	13.6%	13.6%	17.6%	10.7%
Food Service Operations - 92G				
Reenlistment Rate	67.3%	63.6%	53.9%	38.8%
Deployment Rate	12.7%	31.8%	53.0%	39.2%
Number of Deployed Months	0.13	0.34	0.57	0.43
Number of Deployments	0.71	2.27	4.42	3.52
Longest Deployment	0.71	2.21	4.28	4.55
Expected Deployment Rate	12.6%	12.6%	17.3%	10.6%
Unit Supply Specialist - 92Y				
Reenlistment Rate	69.2%	59.1%	55.7%	43.3%
Deployment Rate	3.8%	24.2%	38.8%	32.7%
Number of Deployed Months	0.04	0.26	0.42	0.39
Number of Deployments	0.24	1.61	3.23	3.16
Longest Deployment	0.24	1.55	3.21	4.22
Expected Deployment Rate	10.2%	10.2%	13.6%	8.7%

Table A-4: Regression Results  
Impact of Recent Deployment on Retention  
3-6 Years of Service

Variable	Recently Deployed	Number of Months Deployed	Number of Times Deployed	Length of Longest Deployment
Intercept	-4.162 **	-4.128 **	-4.159 **	-4.115 **
Deployment Measure	0.233 **	0.002	0.180 **	0.031 **
Months Deployed Squared	NA	0.002 **	NA	NA
Male	0.264 **	0.266 **	0.266 **	0.258 **
Unknown Demographic Info.	8.760	8.558	8.697	8.666
Has Dependent Children	0.495 **	0.499 **	0.495 **	0.502 **
Unknown Dependents	-9.200	-9.048	-9.150	-9.119
Married	0.247 **	0.245 **	0.248 **	0.248 **
Divorced	0.472 **	0.462 **	0.472 **	0.464 **
Unknown Marital Status	1.615 **	1.628 **	1.615 **	1.614 **
Black	0.455 **	0.456 **	0.456 **	0.455 **
Asian	0.234 *	0.226 *	0.237 *	0.227 *
Hispanic	0.242 **	0.241 **	0.243 **	0.239 **
Race/Ethnicity Unknown	0.465	0.502	0.478	0.489
Other Non-White	0.302 **	0.297 **	0.301 **	0.296 **
High Quality Recruit	-0.291 **	-0.287 **	-0.292 **	-0.290 **
Unknown Quality	-0.232	-0.229	-0.233	-0.216
Grade 02	1.621 **	1.611 **	1.625 **	1.613 **
Grade 03	2.534 **	2.534 **	2.542 **	2.520 **
Grade 04	3.884 **	3.879 **	3.893 **	3.854 **
Grade 05	4.569 **	4.565 **	4.576 **	4.543 **
Grade 06-08	5.260 **	5.250 **	5.260 **	5.240 **
YOS at ETS	-0.075 **	-0.077 **	-0.076 **	-0.075 **
ETS During 2004	-0.393 **	-0.393 **	-0.388 **	-0.411 **
ETS During 2005	-0.515 **	-0.547 **	-0.511 **	-0.590 **
MOS 11B	-0.176 **	-0.179 **	-0.182 **	-0.188 **
MOS 63X	0.241 **	0.234 **	0.240 **	0.232 **
MOS 68W	0.244 **	0.244 **	0.243 **	0.244 **
MOS 92Y	0.391 **	0.387 **	0.389 **	0.383 **
MOS 92A	-0.004	0.000	-0.002	-0.013
MOS 21B	0.058	0.048	0.063	0.037
MOS 19K	0.087	0.072	0.093	0.052
MOS 92G	0.365 **	0.367 **	0.370 **	0.355 **
MOS 88M	0.116	0.114	0.115	0.112
MOS 31B	0.291 **	0.276 *	0.288 *	0.272 *
MOS 92F	0.308 **	0.302 **	0.308 **	0.293 **
MOS 13B	0.062	0.047	0.066	0.038
MOS 42A	0.447 **	0.435 **	0.443 **	0.439 **

\*\* Significantly different from zero at the 99% level. \* Significantly different from zero at the 95% level. # Significantly different from zero at the 90% level.

Table A-4: Regression Results  
Impact of Recent Deployment on Retention  
3-6 Years of Service  
(Continued)

Variable	Recently Deployed	Number of Months Deployed	Number of Times Deployed	Length of Longest Deployment
MOS 19D	0.051	0.029	0.055	0.026
MOS 42L	0.395 **	0.391 **	0.393 **	0.389 **
MOS 63B	0.010	0.016	0.013	0.007
MOS 74D	0.165	0.173	0.168	0.169
MOS 25U	-0.100	-0.105	-0.098	-0.112
MOS 11C	0.085	0.080	0.082	0.080
MOS 25Q	-0.578 **	-0.589 **	-0.577 **	-0.598 **
MOS 25F	-0.462 **	-0.470 **	-0.459 **	-0.484 **
MOS 13F	-0.221	-0.242	-0.226	-0.236
MOS 35F	0.096	0.100	0.093	0.092
MOS 52D	0.005	0.011	0.007	0.002
MOS 89B	-0.004	0.019	-0.004	0.011
MOS 14S	-0.091	-0.090	-0.082	-0.095
MOS 15T	0.196	0.188	0.193	0.181
MOS 13M	-0.367 #	-0.340	-0.358 #	-0.354 #
MOS 63M	0.370 #	0.375 #	0.375 #	0.362 #
MOS 25B	-0.207	-0.212	-0.208	-0.195

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-5: Regression Results  
Impact of Recent Deployment on Retention  
7-9 Years of Service

Variable	Recently Deployed	Number of Months Deployed	Number of Times Deployed	Length of Longest Deployment
Intercept	0.041	0.089	0.048	0.067
Deployment Measure	0.440 **	0.070 **	0.387 **	0.057 **
Months Deployed Squared	NA	-0.001	NA	NA
Male	0.336 **	0.338 **	0.329 **	0.336 **
Unknown Demographic Info.	-0.358	-0.301	-0.408	-0.091
Has Dependent Children	0.182 *	0.187 *	0.183 *	0.184 *
Married	0.186 #	0.187 #	0.188 *	0.189 *
Divorced	0.061	0.073	0.065	0.080
Unknown Marital Status	1.408	1.415	1.426	1.240
Black	0.346 **	0.346 **	0.347 **	0.341 **
Asian	0.089	0.099	0.094	0.112
Hispanic	0.038	0.034	0.033	0.035
Race/Ethnicity Unknown	-14.255	-14.294	-14.206	-14.302
Other Non-White	0.016	0.010	0.014	0.015
High Quality Recruit	-0.272 **	-0.277 **	-0.275 **	-0.285 **
Grade Unknown	-0.127	-0.125	-0.153	-0.105
Grade 01-04	-1.165 **	-1.169 **	-1.164 **	-1.182 **
Grade 06-08	0.747 **	0.754 **	0.743 **	0.756 **
YOS at ETS	0.061	0.056	0.061	0.061
ETS During 2004	-0.339 **	-0.353 **	-0.342 **	-0.356 **
ETS During 2005	-0.658 **	-0.697 **	-0.660 **	-0.762 **
MOS 11B	-0.082	-0.097	-0.098	-0.094
MOS 63X	-0.034	-0.047	-0.028	-0.075
MOS 68W	0.258	0.266	0.256	0.279
MOS 92Y	0.003	0.001	0.007	-0.004
MOS 92A	-0.281	-0.284	-0.276	-0.290
MOS 21B	-0.124	-0.141	-0.128	-0.185
MOS 19K	0.156	0.130	0.164	0.133
MOS 92G	0.355	0.359	0.357	0.366
MOS 88M	0.085	0.072	0.080	0.078
MOS 31B	-0.403 *	-0.409 *	-0.409 *	-0.415 *
MOS 92F	-0.002	0.016	-0.004	-0.016
MOS 13B	0.176	0.163	0.180	0.165
MOS 42A	0.025	0.021	0.027	-0.002
MOS 19D	-0.246	-0.251	-0.231	-0.280

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-5: Regression Results  
Impact of Recent Deployment on Retention  
7-9 Years of Service  
(Continued)

Variable	Recently Deployed	Number of Months Deployed	Number of Times Deployed	Length of Longest Deployment
MOS 42L	0.457 #	0.459 #	0.450 #	0.451 #
MOS 63B	-0.203	-0.210	-0.195	-0.214
MOS 74D	0.082	0.060	0.071	0.069
MOS 25U	-0.302	-0.306	-0.314	-0.319
MOS 11C	0.382	0.374	0.389	0.361
MOS 25Q	-0.291	-0.302	-0.311	-0.308
MOS 25F	-0.203	-0.211	-0.212	-0.234
MOS 13F	0.360	0.315	0.327	0.364
MOS 35F	-0.432	-0.414	-0.449	-0.408
MOS 52D	-0.289	-0.269	-0.322	-0.261
MOS 89B	0.741	0.777	0.720	0.748
MOS 14S	-0.125	-0.147	-0.128	-0.147
MOS 15T	-0.202	-0.222	-0.205	-0.263
MOS 13M	-0.333	-0.341	-0.309	-0.345
MOS 63M	-0.123	-0.093	-0.105	-0.105
MOS 25B	-0.063	-0.056	-0.059	-0.084

\*\*Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-6: Regression Results  
Impact of Deployment Expectations on Retention  
3-6 Years of Service

Variable	No Time/MOS	With Time Dummies	With MOS and Time Dummies
Intercept	-4.171 **	-3.725 **	-4.021 **
Expected Deployment	-2.411 **	-2.925 **	-1.619 *
Male	0.249 **	0.261 **	0.307 **
Unknown Gender	8.604	8.648	8.663
Has Children	0.424 **	0.502 **	0.498 **
Unknown Dependents	-9.248	-9.190	-9.079
Currently Married	0.283 **	0.249 **	0.237 **
Divorced	0.486 **	0.483 **	0.457 **
Marital Status Unknown	1.485 **	1.603 **	1.634 **
Black	0.506 **	0.484 **	0.452 **
Asian	0.246 *	0.242 *	0.222 *
Hispanic	0.250 **	0.242 **	0.244 **
Race/Ethnicity Unknown	0.593	0.522	0.473
Other Non-White	0.300 **	0.292 **	0.300 **
High Quality Recruit	-0.372 **	-0.353 **	-0.299 **
Quality Unknown	-0.274	-0.269	-0.254
Grade 02	1.700 **	1.668 **	1.648 **
Grade 03	2.691 **	2.616 **	2.595 **
Grade 04	4.088 **	3.996 **	3.982 **
Grade 05	4.774 **	4.676 **	4.667 **
Grade 06-08	5.412 **	5.322 **	5.353 **
YOS at ETS	-0.071 **	-0.089 **	-0.085 **
ETS During 2004	NA	-0.207 **	-0.258 **
ETS During 2005	NA	-0.471 **	-0.465 **
MOS 11B	NA	NA	-0.095
MOS 63X	NA	NA	0.279 **
MOS 68W	NA	NA	0.269 **
MOS 92Y	NA	NA	0.366 **
MOS 92A	NA	NA	0.003
MOS 21B	NA	NA	0.106
MOS 19K	NA	NA	0.148
MOS 92G	NA	NA	0.403 **
MOS 88M	NA	NA	0.132
MOS 31B	NA	NA	0.251 *
MOS 92F	NA	NA	0.350 **
MOS 13B	NA	NA	0.070
MOS 42A	NA	NA	0.355 **
MOS 19D	NA	NA	0.134
MOS 42L	NA	NA	0.045

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-6: Regression Results  
Impact of Deployment Expectations on Retention  
3-6 Years of Service  
(Continued)

Variable	No Time/MOS	With Time Dummies	With MOS and Time Dummies
MOS 63B	NA	NA	0.281 *
MOS 74D	NA	NA	0.196
MOS 25U	NA	NA	-0.055
MOS 11C	NA	NA	0.178
MOS 25Q	NA	NA	-0.457 **
MOS 25F	NA	NA	-0.368 *
MOS 13F	NA	NA	-0.128
MOS 35F	NA	NA	0.132
MOS 52D	NA	NA	0.045
MOS 89B	NA	NA	0.048
MOS 14S	NA	NA	-0.047
MOS 15T	NA	NA	0.288
MOS 13M	NA	NA	-0.318
MOS 63M	NA	NA	0.429 *
MOS 25B	NA	NA	-0.222

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.



Table A-7: Regression Results  
Impact of Deployment Expectations on Retention  
7-9 Years of Service

Variable	No Time/MOS	With Time Dummies	With MOS and Time Dummies
Intercept	-0.207	0.147	0.230
Expected Deployment	-0.026	-0.675	-0.984
Male	0.338 **	0.353 **	0.384 **
Gender Unknown	-0.614	-0.602	-0.410
Has Children	0.073	0.157 #	0.157 #
Currently Married	0.252 **	0.203 *	0.190 *
Divorced	0.101	0.072	0.060
Marital Status Unknown	1.240	1.404	1.345
Black	0.377 **	0.358 **	0.328 **
Asian	0.108	0.092	0.078
Hispanic	0.044	0.061	0.041
Race/Ethnicity Unknown	-14.307	-14.115	-14.217
Other Non-White	0.013	0.010	0.023
High Quality Recruit	-0.308 **	-0.307 **	-0.288 **
Quality Unknown	-0.162	-0.196	-0.190
Grade 01-04	-1.152 **	-1.150 **	-1.190 **
Grade 06-08	0.696 **	0.730 **	0.735 **
YOS at ETS	0.073 #	0.065	0.057
ETS During 2004	NA	-0.200 *	-0.195 #
ETS During 2005	NA	-0.546 **	-0.563 **
MOS 11B	NA	NA	-0.019
MOS 63X	NA	NA	0.046
MOS 68W	NA	NA	0.301 #
MOS 92Y	NA	NA	-0.016
MOS 92A	NA	NA	-0.255
MOS 21B	NA	NA	-0.058
MOS 19K	NA	NA	0.237
MOS 92G	NA	NA	0.405
MOS 88M	NA	NA	0.160
MOS 31B	NA	NA	-0.450 *
MOS 92F	NA	NA	0.088
MOS 13B	NA	NA	0.207
MOS 42A	NA	NA	-0.047
MOS 19D	NA	NA	-0.140
MOS 42L	NA	NA	0.327

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-7: Regression Results  
Impact of Deployment Expectations on Retention  
7-9 Years of Service  
(Continued)

Variable	No Time/MOS	With Time Dummies	With MOS and Time Dummies
MOS 63B	NA	NA	0.355
MOS 74D	NA	NA	0.134
MOS 25U	NA	NA	0.045
MOS 11C	NA	NA	0.281
MOS 25Q	NA	NA	0.196
MOS 25F	NA	NA	-0.055
MOS 13F	NA	NA	0.178
MOS 35F	NA	NA	-0.457
MOS 52D	NA	NA	-0.368
MOS 89B	NA	NA	-0.128
MOS 14S	NA	NA	0.132
MOS 15T	NA	NA	0.045
MOS 13M	NA	NA	0.048
MOS 63M	NA	NA	-0.047
MOS 25B	NA	NA	0.288

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-8: Regression Results  
Impact of Deployment Expectations on Retention  
3-9 Years of Service

Variable	No Time/MOS	With Time Dummies	With MOS and Time Dummies
Intercept	-4.484 **	-4.071 **	-4.316 **
Expected Deployment	-2.411 **	-2.306 **	-1.362 *
Male	0.249 **	0.268 **	0.313 **
Gender Unknown	8.604	9.156	9.176
Has Children	0.424 **	0.421 **	0.416 **
Dependents Unknown	-9.248	-9.370	-9.274
Currently Married	0.283 **	0.249 **	0.237 **
Divorced	0.486 **	0.382 **	0.362 **
Marital Status Unknown	1.485 **	1.556 **	1.585 **
Black	0.506 **	0.462 **	0.430 **
Asian	0.246 *	0.221 *	0.198 *
Hispanic	0.250 **	0.216 **	0.214 **
Race/Ethnicity Unknown	0.593	0.163	0.118
Other Non-White	0.300 **	0.223 **	0.230 **
High Quality Recruit	-0.372 **	-0.366 **	-0.314 **
Quality Unknown	-0.274	-0.244	-0.216
Grade 02	1.700 **	1.697 **	1.680 **
Grade 03	2.691 **	2.644 **	2.628 **
Grade 04	4.088 **	3.993 **	3.987 **
Grade 05	4.774 **	4.706 **	4.711 **
Grade 06-08	5.412 **	5.543 **	5.567 **
YOS at ETS	-0.071	-0.013	-0.012
ETS During 2004	NA	-0.210 **	-0.249 **
ETS During 2005	NA	-0.471 **	-0.469 **
MOS 11B	NA	NA	-0.084
MOS 63X	NA	NA	0.262 **
MOS 68W	NA	NA	0.278 **
MOS 92Y	NA	NA	0.342 **
MOS 92A	NA	NA	-0.040
MOS 21B	NA	NA	0.100
MOS 19K	NA	NA	0.182 #
MOS 92G	NA	NA	0.424 **
MOS 88M	NA	NA	0.153 #
MOS 31B	NA	NA	0.053
MOS 92F	NA	NA	0.334 **
MOS 13B	NA	NA	0.105
MOS 42A	NA	NA	0.279 **
MOS 19D	NA	NA	0.098
MOS 42L	NA	NA	0.294 *

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-8: Regression Results  
Impact of Deployment Expectations on Retention  
3-9 Years of Service  
(Continued)

Variable	No Time/MOS	With Time Dummies	With MOS and Time Dummies
MOS 63B	NA	NA	0.036
MOS 74D	NA	NA	0.197
MOS 25U	NA	NA	-0.076
MOS 11C	NA	NA	0.215 #
MOS 25Q	NA	NA	-0.387 **
MOS 25F	NA	NA	-0.301 *
MOS 13F	NA	NA	-0.046
MOS 35F	NA	NA	0.033
MOS 52D	NA	NA	0.016
MOS 89B	NA	NA	0.159
MOS 14S	NA	NA	-0.029
MOS 15T	NA	NA	0.115
MOS 13M	NA	NA	-0.284
MOS 63M	NA	NA	0.341 #
MOS 25B	NA	NA	-0.272

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

**Table A-9: Regression Results**  
**Impact of Deployment Expectations and Fatality Rates on Retention**

<b>Variable</b>	<b>3-6 YOS</b>	<b>7-9 YOS</b>	<b>3-9 YOS</b>
Expected Deployment	-1.6185 *	-0.9835	-1.3617 *
Fatality Rate	-25.1327 **	1.4388	-26.9729 **
Male	0.3066 **	0.3841 **	0.3133 **
Gender Unknown	8.6175	-0.3996	9.166
Has Children	0.4978 **	0.1572 #	0.4156 **
Unknown Dependents	-9.0336	NA	-9.264
Currently Married	0.2369 **	0.1895 *	0.2367 **
Divorced	0.4571 **	0.0604	0.3619 **
Marital Status Unknown	1.6344 **	1.3448	1.5854 **
Black	0.4523 **	0.3276 **	0.4301 **
Asian	0.2222 *	0.0777	0.1977 *
Hispanic	0.2437 **	0.0409	0.2135 **
Race/Ethnicity Unknown	0.4734	-13.9668	0.1183
Other Non-White	0.2996 **	0.0233	0.2296 **
High Quality Recruit	-0.2987 **	-0.2878 **	-0.3138 **
Quality Unknown	-0.2536	-0.1903	-0.2161
Grade 02	1.6479 **	NA	10.0007 **
Grade 03	2.5948 **	NA	12.4785 **
Grade 04	3.9816 **	NA	1.6798 **
Grade 05	4.6669 **	NA	2.6276 **
Grade 01-04	NA	-1.1903 **	3.9872 **
Grade 06-08	5.3528 **	0.7351 **	4.7107 **
YOS at ETS	-0.0849 **	0.0566	5.5674 **
ETS During 2004	9.2925 **	-0.7418	10.0007 **
ETS During 2005	11.5992 **	-1.2536	12.4785 **
MOS 11B	-0.0951	-0.0189	-0.0119
MOS 63X	0.2785 **	0.0457	-0.0839
MOS 68W	0.2688 **	0.3009 #	0.2619 **
MOS 92Y	0.3657 **	-0.0162	0.2784 **
MOS 92A	0.00324	-0.2545	0.342 **
MOS 21B	0.1056	-0.0577	-0.0404
MOS 19K	0.1476	0.2368	0.0995
MOS 92G	0.403 **	0.4048	0.1815 #
MOS 88M	0.1323	0.16	0.4241 **
MOS 31B	0.251 *	-0.4501 *	0.1533 #
MOS 92F	0.3495 **	0.088	0.0532
MOS 13B	0.07	0.2068	0.3341 **
MOS 42A	0.3553 **	-0.0465	0.1051
MOS 19D	0.1343	-0.14	0.2788 **
MOS 42L	0.281 *	0.3268	0.2943 *

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.

Table A-9: Regression Results  
Impact of Deployment Expectations and Fatality Rates on Retention  
(Continued)

Variable	3-6 YOS	7-9 YOS	3-9 YOS
MOS 63B	0.0452	-0.1203	0.0979
MOS 74D	0.196	0.1499	0.0357
MOS 25U	-0.0545	-0.2833	0.1965
MOS 11C	0.178	0.4563	-0.0755
MOS 25Q	-0.4572 **	-0.1203	0.2152 #
MOS 25F	-0.3677 *	-0.1153	-0.3866 **
MOS 13F	-0.1277	0.4675	-0.3007 *
MOS 35F	0.1324	-0.4242	-0.0462
MOS 52D	0.0449	-0.1785	0.0329
MOS 89B	0.0482	0.7517	0.0164
MOS 14S	-0.0474	-0.0628	0.1593
MOS 15T	0.2884	-0.1223	-0.0293
MOS 13M	-0.3181	-0.2166	0.1151
MOS 63M	0.4294 *	-0.069	-0.2843
MOS 25B	-0.2222	-0.1451	0.3412 #

\*\* Significantly different from zero at the 99% level.

\* Significantly different from zero at the 95% level.

# Significantly different from zero at the 90% level.